

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-7 and 9-23 are pending in the present application. Claim 8 has been cancelled, claim 1 has been amended and claims 11-23 have been added by the present amendment.

In the outstanding Office Action, claims 1-10 were rejected under 35 U.S.C. § § 112, first and second paragraphs; and claims 1-10 were rejected under 35 U.S.C. 102(a) as anticipated by Chen.

Regarding the rejection of claims 1-10 under 35 U.S.C. 112, first paragraph, the Office Action indicates that the sphere 20 is not contained in the spatial part 26, and it is not understood why the spatial part is set to less than 100 times as large as the diameter of the sphere 20. However, it is respectfully noted dependent claim 7 recites that the height is set with respect to the depth of the concavity (and not the sphere). Further, the present application at page 10, beginning at line 4, indicates the height of the spatial part with respect to the surface of the object is required to be more than 10 times as large as the depth of the concavity to simulate the influence of the concavity on the gas on the periphery of the concavity. This section also indicates this range is selected to prevent too much time taking in a computation for a range in which the gas flows at a uniform velocity without being affected by the concavity. This section further indicates when the object is a sphere, it is preferable to set the height of the spatial part to less than 100 as large as the diameter of the sphere. This range produces similar advantages as discussed above.

Further, the Office Action also indicates that Figure 4 describes the spatial part 26 being divided into the shape of a lattice to form lattice shaped portions 26a, but that the spatial part 26 depicted in Figure 3 is a three-dimensional volume. The Office Action then questions how the area elements of Figure 4 are taken from a surface region of Figure 3. However, it is respectfully submitted Figure 4 illustrates one of the sides of the spatial part 26 in Figure 3, and thus illustrates the elements in two dimensional coordinates.

Accordingly, in light of the above comments, it is respectfully requested the rejections of claims 1-10 under 35 U.S.C. § 112, first paragraph, be withdrawn.

Further, claim 1 has been amended in light of the comments noted in the Office Action regarding the rejection of claim 1 under 35 U.S.C. § 112, second paragraph, Accordingly, it is respectfully requested this rejection also be withdrawn.

Claims 1-10 stand rejected under 35 U.S.C. § 102(b) as anticipated by Chen et al. This rejection is respectfully traversed.

Independent claim 1 has been amended to include the subject matter recited in dependent claim 8. In more detail, independent claim 1 now recites that a height of each of said lattice-shaped portions of said spatial part located in a range less than $1/Re^{0.5}$ (Re is Reynolds number, $Re = \text{representative velocity} \times \text{representative length} / \text{kinematic viscosity of gas}$) with respect to said surface of said object is set to not less than $1/(1000 \cdot Re^{0.5})$ nor more than $1/Re^{0.5}$, and said height of each of said lattice-shaped portions located in a range not less than $1/Re^{0.5}$ with respect to said surface of said object is set to not less than $1/Re^{0.5}$.

These features are supported at least by Figure 4 and in the corresponding description in the specification. Further, page 10, line 19 to page 11, line 15 discusses the particular advantages achieved with this claimed range. For example, with this claimed range, it is possible to simulate the gas flow minutely and analyze the relationship between the concavity and the change of the flow of the gas in detail. The gas distant from the surface of the object has a small change in its flow velocity. Thus, the spatial part is divided into large lattice-shaped portions to reduce the number of times of computation and increase the computation efficiency. Thus it is possible to reduce the period of time required for the simulation.

On the contrary, Chen et al. does not teach or suggest such a claimed range. In more detail, Figures 4 and 5 of Chen et al. merely show a region 150 around an object 155 having a higher resolution than the regions 160 and 165. Similar comments apply to Figure 5 of Chen et al. However, there is no discussion in Chen et al. about the claimed range of the present invention. Therefore, the advantages of the present invention are not achieved with the simulation model in Chen et al.

Accordingly, it is respectfully submitted independent claim 1 and each of the claims depending therefrom are allowable.

Further, new claims 14-23 have been added to set forth the invention in a varying scope, and Applicant submits the new claims are supported by the originally filed specification. For example, new dependent claim 11 recites that the height of the lattice-shaped portions gradually increases from the surface of the object to the height of the spatial part. These features are supported at least by Figure 4 and the corresponding description of the specification. Chen et al. does not teach or suggest these features. In addition, new dependent claim 12 recites that the spatial part is divided into a plurality of lattice-shaped portions combined with any combination of trigonal pyramid shaped portions, quadrangular pyramid shaped portions or trigonal prism shaped portions. These features are supported at least by Figure 6D and the corresponding description in the specification. Chen et al. also do not teach or suggest these features. In addition, new claims 13-23 are similar to claims 1-7 and 9-12, but are directed to a computer program product.

CONCLUSION

In view of the above remarks, it is believed that the claims clearly distinguish over the patents relied on by the Examiner, either alone or in combination.

Since the remaining patents cited by the Examiner have not been utilized to reject the claims, but to merely show the state of the art, no comment need be made with respect thereto.

In view of the above amendments and remarks, reconsideration of the rejections and allowance of all of the claims are respectfully requested.

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

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If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (703) 205-8000 in the Washington, D.C. area.

A prompt and favorable consideration of this Amendment is respectfully requested.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees. In view of the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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